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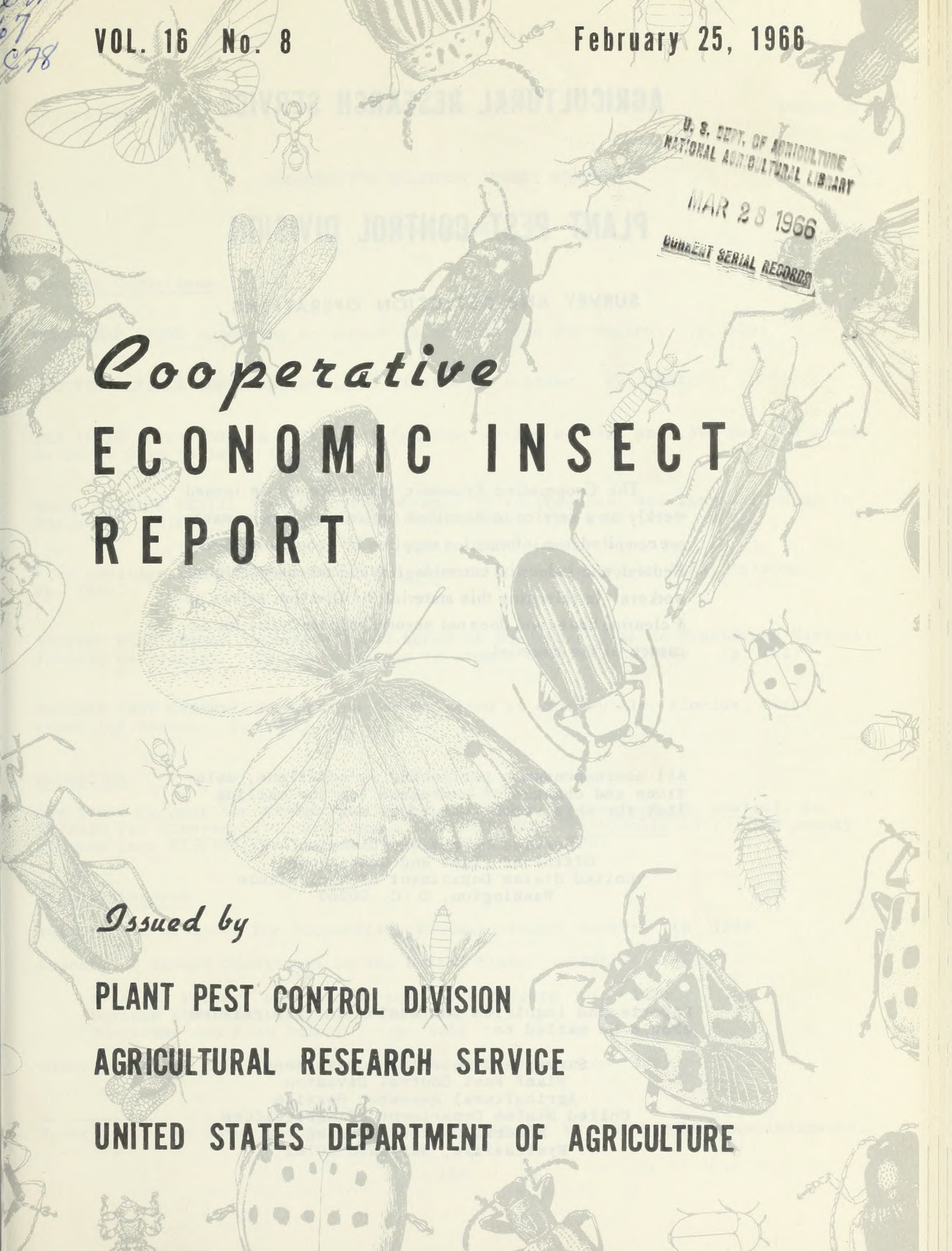

Cooperative
ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 16 February 25, 1966 Number 8

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

CORN LEAF APHID appearing in barley in Arizona and New Mexico. (p. 119).

SPOTTED ALFALFA APHID appearing in alfalfa in Arizona. (p. 119).

PEA APHID increasing in alfalfa in Arizona; ranged as high as 2,500 per 100 sweeps in north Gila Valley. (p. 119).

Small ALFALFA WEEVIL larvae found February 11 in Arkansas, and larvae feeding in Tennessee. First reports of larvae this season. (p. 119).

Five additional CALIFORNIA RED SCALE infestations detected in Yuma, Arizona. (p. 120).

WESTERN PINE BEETLE infesting 1,000 acres of ponderosa pine on Stanislaus National Forest, California. Control underway to stem a possible buildup. (p. 121).

EASTERN TENT CATERPILLAR eggs and larvae noted at Gainesville, Florida; first report of season. (p. 121).

Detection

New State records for Hawaii included a CADDISFLY (Cheumatopsyche analis), an ASTEIID FLY (Loewimyia n. sp.) and a PRODOXID MOTH (Tetegicula sp.). New county records from Florida, California, and Georgia. (p. 124).

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WEATHER OF THE WEEK ENDING FEBRUARY 21

HIGHLIGHTS: (1) Winter returns, Midwest and East. (2) Heavy rain Southeast, dry Southwest.

TEMPERATURE: Winter's brief respite ended over most of the Nation during last week as the upper air trough shifted eastward, intensified, and deepened. As a result, the predominantly southerly flow of warm, moist air over the eastern half of the Country gradually gave way to a northerly flow of dry and very cold air. Below zero temperatures were reported in 17 States from the central Rockies to New England when northerly winds pushed an Arctic air mass across the Midwest and East. A new 27-year record at International Falls, Minnesota, was set Friday when the mercury dipped to -44°; also for 6 days temperatures remained at zero or below with a weekly average temperature of -19° which was 27° below normal. In northern New England the strong, cold high pressure system dropped average temperatures about 20° from the previous week as wind-chill conditions ended a 4-week warm spell in that area. Because the influx of frigid air in the Southeast did not arrive until the weekend, that region experienced near to above normal average weekly temperatures. During the latter half of the week, the West warmed as the East cooled. The rising temperature trend, accompanying the eastward movement of the upper air trough, resulted in averages that were about 3° higher than 2 weeks ago in the Great Basin and Southwest.

PRECIPITATION: Moderate to heavy rains fell for the second straight week in the Southeast, although amounts were not as large as for the previous week. Disturbances in the Gulf of Mexico, and along fronts caused intermittent precipitation until skies gradually cleared as the massive high pressure system settled over the area during the weekend. Throughout the Midwest and East, snow flurries fell ahead of and behind the High. Minor storms moved rapidly eastward but lack of moisture caused snowfalls to be relatively light. An exception was western and

Weather continued on page 140.

SPECIAL MIGRATORY INSECTS

GREENBUG (Schizaphis graminum) - OKLAHOMA - Continues heavy in wheat locally in Mayes County. (Okla. Coop. Sur.). KANSAS - Populations in wheat in south central and southeast areas diminished considerably during last 3 weeks as result of below zero temperatures and considerable rain. Ranged 10-30 per linear foot in Sedgwick County fields where counts as high as 1,000 per linear foot January 21. Only an occasional aphid found in Butler, Cowley and Chautauqua Counties. Populations dropped from 400 per linear foot to less than 35 in Montgomery County. (Simpson).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Light infestations appearing in barley in western Maricopa County and in Queen Creek area of county. (Ariz. Coop. Sur.). NEW MEXICO - Very light in barley fields in southern Dona Ana County. (Elson, Campbell).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Small, scattered infestations appearing in alfalfa in Yuma and Maricopa Counties.(Ariz. Coop. Sur.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Averaged 4 per linear foot in wheat checked in Jackson County. (Okla. Coop. Sur.). TEXAS - Approximately 10 per 30 sweeps in oats near College Station, Brazos County. (Parker). ARIZONA - Very light numbers detected in small grains in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Averaged 50 per linear foot in wheat in Jackson County; light in Harmon County. (Okla. Coop. Sur.).

THRIPS - NEW MEXICO - Light numbers noted in barley in Dona Ana County. (Elson, Campbell).

FORAGE LEGUMES

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Increasing in alfalfa in Yuma County and in warmer valleys of Maricopa and Pinal Counties. Heaviest in north Gila Valley; ranged as high as 2,500 per 100 sweeps. (Ariz. Coop. Sur.). NEW MEXICO - Light in alfalfa in Bernalillo, Chaves and Dona Ana Counties. (N. M. Coop. Rpt.). TEXAS - Light in alfalfa near College Station, Brazos County; about 50 per 5 sweeps. (Parker).

COWPEA APHID (Aphis craccivora) - TEXAS - Very light in alfalfa near College Station, Brazos County; about 15 per 50 sweeps. (Parker).

ALFALFA WEEVIL (Hypera postica) - ARKANSAS - Egg deposition studies continue in alfalfa in Mississippi County; data indicate eggs average 1,078,111 per acre. Hatching began second week in February as small larvae found February 11. (Ark. Ins. Sur.). TENNESSEE - Larvae feeding in buds of alfalfa in Henry and Obion Counties. (Johnson).

GREEN CLOVERWORM (Plathypena scabra) - TEXAS - Second-stage larvae light in alfalfa near College Station, Brazos County; approximately 10 per 30 sweeps. (Parker).

COTTON

PINK SCAVENGER CATERPILLAR (Sathrobrota rileyi) - CALIFORNIA - This species and Trichobaris compacta (a weevil) continue medium in gin trash collections in Bard and Brawley, Imperial County. (Cal. Coop. Rpt.).

Pink Bollworm - See Federal-State Plant Protection Programs p. 123.

SUGAR BEETS

FALSE CELERY LEAF TIER (*Udea profundalis*) - CALIFORNIA - Larvae of this and *Ptycholoma peritana* (a leaf roller moth) infesting sugar beet plantings yet to be harvested in Fresno County. (Cal. Coop. Rpt.).

DECIDUOUS FRUITS AND NUTS

PEACH TREE BORER (*Sanninoidea exitiosa*) - ARKANSAS - Examination of young peach trees February 9 in Johnson County showed average of 32.5 percent of trees in 8 orchards infested. Survey made by checking 20 trees in each orchard, recording number of trees infested; 7 of 8 orchards found infested with 5-17 of 20 trees infested; averaged 7.4 trees. For all orchards, 52 of 160 trees, or 32.5 percent, infested. Due to heavy rain and undesirable working conditions, no attempt made to estimate number of borers per tree. (Ark. Ins. Sur.).

SAN JOSE SCALE (*Aspidiotus perniciosus*) - OKLAHOMA - Moderate and damaging peach trees in Bryan County. (Okla. Coop. Sur.).

CITRUS

CALIFORNIA RED SCALE (*Aonidiella aurantii*) - ARIZONA - Five additional infestations detected in city of Yuma; 9 infestations found this year. (Ariz. Coop. Sur.).

OLEANDER SCALE (*Aspidiotus hederae*) - CALIFORNIA - Locally heavy on lemon foliage in Palo Alto, Santa Clara County. (Cal. Coop. Rpt.).

GENERAL VEGETABLES

ONION MAGGOT (*Hylemya antiqua*) - CALIFORNIA - Adults medium on shallot plantings in Salinas, Monterey County. (Cal. Coop. Rpt.).

THRIPS - NEW MEXICO - Averaged 1.2 per onion plant in Dona Ana County. (Campbell, Elson).

ORNAMENTALS

GRANULATE CUTWORM (*Feltia subterranea*) - ARIZONA - Numerous in lawns and around ornamentals in Maricopa County. (Ariz. Coop. Sur.).

APHIDS - ARIZONA - *Lachnus salignus* heavy on ornamental willows in Phoenix area, Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - *Cinara tujafilina* widespread, light to heavy on arborvitae in Albuquerque, Bernalillo County. (Heninger). MISSOURI - *Rhopalosiphum maidis* troublesome in greenhouse in Portageville. (Keaster).

ARMORED SCALES - CALIFORNIA - *Diaspis cocois* and *Aspidiotus hederae* medium on Phoenix palm in Santa Barbara, Santa Barbara County. *Parlatoria camelliae* locally heavy on camellias in Gridley, Butte County. (Cal. Coop. Rpt.). ARIZONA - *Aspidiotus hederae* infesting ivy at several locations in Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - *Unaspis euonymi* light to very heavy on euonymus in Albuquerque, Bernalillo County. (Heninger, Kloepfer). ALABAMA - A scale tentatively identified as *Pseudaonidia paeoniae* infesting greenhouse camellia plants throughout Birmingham area, Jefferson County. Officials of local camellia society, representing several hundred greenhouse hobbyists, report this is the most severe pest confronting them. Reports indicate species became problem only during last 3-4 years, and controls have been most difficult, if not impossible under greenhouse conditions. (Garrison, Wheeler, et al.). FLORIDA - *Diaspis boisduvalii* infested leaves of windmill palm (*Trachycarpus fortunei*) in nursery at

Macclenny, Baker County. (Collins, Jan. 1). Comstockiella sabalis caused moderate damage to 90 percent of Sabal palmetto plants in nursery in Pembroke, Polk County. (Schmidt, Jan. 4). Aspidiotus spinosus infested leaves of Ruscus aculeatus in nursery at Bradenton, Manatee County. (Bickner, Jan. 3). These are new county records. (Fla. Coop. Sur.).

SOFT SCALES - FLORIDA - Saissetia coffeae severely damaged stems of 15 sword-fern (Nephrolepis sp.) plants in nursery at Lockhart, Orange County. (Ware, Feb. 4). CALIFORNIA - Ceroplastes cirripediformis locally medium on gardenias in Rialto, San Bernardino County. (Cal. Coop. Rpt.).

A THRIPS (Baileyothrips arizonensis) - CALIFORNIA - Light on Euphorbia sp. in Glamis, Imperial County. First record for Imperial County. (Cal. Coop. Rpt.).

A HOLLY LEAF MINER (Phytomyza n. sp., in ilicicola complex) - CALIFORNIA - Heavy on Ilex vomitoria cuttings in San Marcos, San Diego County. (Cal. Coop. Rpt.).

SPIDER MITES (Tetranychus spp.) - NEW MEXICO - Medium on carnations in Roswell greenhouse. (Mathews). MISSOURI - Troublesome in greenhouse in Portageville area, southeastern district. (Keaster).

AN ERIOPHYID MITE (Calacarus adornatus) - ALABAMA - Extremely heavy on several young camellia plants in Lee County landscape planting. Some abnormal growth noted on younger leaves. (Cunningham et al.).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Large numbers still present in Yadkin, Forsyth, Davie, Davidson and Iredell Counties despite considerable mortality from cold and woodpeckers. Infestations lower in Catawba, Cleveland, Gaston, Mecklenburg, Cabarrus, Clay, Granville and Vance Counties. (H. J. Green).

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Infesting 1,000 acres of ponderosa pine in the Hunter Creek area, Stanislaus National Forest. Over 100 trees dead. Direct control by sanitation salvage and tree treatment carried out to stem a possible buildup. (Perry, USFS).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - Eggs and larvae noted on stems and leaves of black cherry (Prunus serotina) at Gainesville, Alachua County. Hatched locally February 12. First record this season. Det. by L. A. Hetrick. (Fla. Coop. Sur.).

PINE BARK APHID (Pineus strobi) - ARKANSAS - Reported numerous on pine in Pulaski County January 8; collected in area and determined February 14. (Ark. Ins. Sur.).

MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - UTAH - Grubs apparent in more beef cattle in Cache County herds than 2 weeks ago. (Knowlton). KANSAS - Appear quite numerous in most areas and in most types of cattle. (Simpson). OKLAHOMA - H. lineatum averaged 12 per head on cows in Payne County; moderate in Pontotoc County. (Okla. Coop. Sur.). ARKANSAS - H. lineatum averaged 2 per head in untreated check animals in Yell County. (Ark. Ins. Sur.).

MOSQUITOES - LOUISIANA - Larval collections by Jefferson Parish Department of Mosquito control during period ending February 18 contained Anopheles crucians, Culex salinarius, and Culiseta inornata. Light trap collections very low due to cold weather and rain. Culex salinarius and Culiseta inornata dominant. (Stokes). OKLAHOMA - Several Anopheles punctipennis adults noted in Payne County. (Okla. Coop. Sur.).

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period February 13-19, no cases were reported in the United States. The Republic of Mexico reported 14 cases by State as follows: Territorio sur de Baja California 5, Sonora 9. Sterile screw-worm flies released: Texas 10,806,250 and Mexico 69,223,600.

	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
Year	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 1.	Comparison of specimens reported during corresponding week in 1964 and 1965 in Southwestern Eradication Area. (1966 area figures include cases reported from Arizona and/or California; 1965 figures reflect those from the 5-State area).					
1964	0	0	26	221	0.00	0.00
1965	0	4	33	381	0.00	1.04
1966	0	25	17	144	0.00	17.36
Table 2.	Comparison of specimens reported during corresponding week and in a corresponding area in 1965 in the United States-Mexico Barrier Zone.*					
1965	0	337	7	220	0.00	148.45
1966	14	341	17	122	82.35	279.50

Mexico Field Study - During this period 225 cases were identified in Mexico south of the Barrier Zone as follows: Guerrero 24, Puebla 4, Michoacan 9, Veracruz 35, Oaxaca 6, Sinaloa 27, Guanajuato 3, Hidalgo 1, Yucatan 35, Chiapas 16, San Luis Potosi 3, Campeche 6, Tabasco 16, Nayarit 7, Morelos 6, Jalisco 19, Colima 5, Zacatecas 2, Mexico 1.

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* Barrier Zone - Area in which screw-worm eradication operations are being carried out in an effort to prevent establishment of self-sustaining screw-worm populations in the United States. (Anim. Health Div.).

CATTLE LICE - UTAH - Additional 900 cattle treated for control in Garfield County and 100 in Kane County since late fall 1965. (Knowlton, Lindsay). OKLAHOMA - Several species heavy on cattle in Pontotoc County; moderate in Mayes County. (Okla. Coop. Sur.). ALABAMA - Some cattle in Lee County showing indications of increased infestation. Biting and sucking species not reported as serious on cattle throughout most of State as in most years. (Teaque et al.). NORTH CAROLINA - *Linognathus vituli*, *Solenopotes capillatus* and *Bovicola bovis* light to moderate on cattle examined in Robeson and Columbus Counties. (Mount).

LONE STAR TICK (*Amblyomma americanum*) - ARKANSAS - Averaged 2 per head on cattle checked in Franklin County. Counts made at rear of animals where hair short. (Ark. Ins. Sur.).

HOUSEHOLDS AND STRUCTURES

SOUTHERN FIRE ANT (*Solenopsis xyloni*) - CALIFORNIA - Medium in buildings and infesting yard in Three Rivers, Tulare County. (Cal. Coop. Rpt.).

SUBTERRANEAN TERMITES (*Reticulitermes* spp.) - OKLAHOMA - Colonies reported swarming from several areas of State. (Okla. Coop. Sur.).

STORED PRODUCTS

ANGOUMOIS GRAIN MOTH (*Sitotroga cerealella*) - VIRGINIA - Larvae and pupae in popcorn at locations in Winchester, Frederick County, and Suffolk, Nansemond County. (Isakson, Feb. 12).

FEDERAL-STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (*Pectinophora gossypiella*) - NEW MEXICO - Larval counts remain light on lint cleaner glasses in operating gins around Dona Ana County. (Hare). FLORIDA - Larvae infested wild cotton in Monroe County. (Creamer, Feb. 7). Pupa and larva found in wild cotton at Sanibel Island, Lee County. (Josey, Feb. 11).

SWEETPOTATO WEEVIL (*Cylas formicarius elegantulus*) - Newly infested properties found in 4 GEORGIA counties; inspections negative in 12 other counties. Over 29,300 bushels of sweetpotatoes in curing houses and storage in several counties; all negative except one lot of infested sweetpotatoes in curing house at Cairo, Grady County, Georgia. Surveys in 12 south ALABAMA counties revealed infested properties in 7 counties. Inspections of field and stored sweetpotatoes in 11 MISSISSIPPI counties negative. One infested sweetpotato found in store in Forrest County and 2 newly infested properties found in Jefferson Davis County, Mississippi. One or more newly infested properties found in 10 LOUISIANA parishes; 18 parishes including 441 acres of harvested fields and 5,600 bushels of stored sweetpotatoes inspected. (PPC South. Reg., Jan. Rpt.).

A FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Larvae and adults continue common in southern area even though near freezing or subfreezing temperatures occurred last of January. During second week of February, most recorded from Dade County; few from Broward, Palm Beach and Lee Counties. Larvae taken from fruits of calamondin, kumquat, loquat, egg-fruit, guava and dooryard grapefruit. Four larvae taken from grapefruit at 2 locations in Miami and Miami Springs. (Hancock, Feb. 14). Most adults taken in McPhail traps; 3 adults collected in 3 Steiner traps at Fort Lauderdale, Delray Beach and Miami. (Fla. Coop. Sur.).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - Small extensions found in 3 infested counties of SOUTH CAROLINA. Limited extensions found in 7 counties in GEORGIA; number of small mounds found in blocks treated before 1965. Found for the first time in Heard County, Georgia, December 28. Additional infested sites found in 4 counties in FLORIDA. Newly infested properties found in 10 counties in ALABAMA. Additional infestations found in 4 counties in MISSISSIPPI. Extensions of infestations found in 4 parishes in LOUISIANA; very few active mounds in Washington Parish treatment block. New infestations and extensive additional infested acreage found in survey of 4 counties in TEXAS. (PPC South. Reg., Jan. Rpt.).

CORRECTIONS

CEIR 16(6):86, third paragraph - HEMISPHERICAL SCALE (Saissetia hemisphaerica) should read Saissetia *coffeae*.

CEIR 16(6):95 - APPLE GRAIN APHID (Rhopalosiphon fitchii) should read Rhopalosiphum fitchii. - Line 13 - R. subterraneum should read R. *rufiabdominalis*.

CEIR 16(7):100 - SCALE INSECTS - CALIFORNIA - Apsidiotus hederae should read Aspidiotus hederae.

LIGHT TRAP COLLECTIONS

FLORIDA (Gainesville, 2/15; blacklight) - Agrotis ipsilon 1, Feltia subterranea 3, Pseudaletia unipuncta 2.

GEORGIA (Tifton, 2/9-16 temp. 41-67°F.; precip. 2.0 in.;blacklight) Heliothis virescens 0, H. zea 0, Manduca quinquemaculata 0, M. sexta 0.

SOUTH CAROLINA (Charleston 2/7-13 temp. 25-72°F.; precip. 0.35 in.; blacklight) P. unipuncta 1, Spodoptera frugiperda 0, Prodenia ornithogalli 1, A. ipsilon 1, F. subterranea 7, Peridroma saucia 1, H. virescens 0, H. zea 0, M. sexta 0, M. quinquemaculata 0, Trichoplusia ni 0.

TEXAS (Brownsville, 2/5-11 temp. 40-76°F.; precip. trace 2 blacklight) A. ipsilon 8, F. subterranea 30, H. zea 6, Prodenia ornithogalli 2, Pseudaletia unipuncta 52, Peridroma saucia 9. (Brownsville, 2/12-18 temp. 45-69°F.; precip. 0.39 in.; 2 blacklight) A. ipsilon 31, F. subterranea 39, H. zea 12, Prodenia ornithogalli 6, Pseudaletia unipuncta 93, Peridromia saucia 34.

INSECT DETECTION

A CADDISFLY (Cheumatopsyche analis) - HAWAII - Seven adults recovered from mosquito light traps on Oahu. Det. by D. G. Denning. This is new State record. (Beardsley). (p. 125).

AN ASTEIID FLY (Loewimyia n. sp.) - HAWAII - Two specimens collected by J. W. Beardsley at Barbers Point, Oahu, December 29, 1965. Det. by D E. Hardy as undescribed species. Confirmed by C. F. Sabrosky. This is new State record. (Hardy). (p. 125).

A PRODOXID MOTH (Tetegicula sp.) - HAWAII - Six larvae found boring in seed pods of Yucca sp. from Hawaii destined for California on May 31, 1965, by T. Abear and J. Graffam. Det. by D. M. Weisman. This is a new State record. (Shiroma). (p. 125).

ARMORED SCALES - FLORIDA - Diaspis boisduvalii infested windmill palm in Baker County (Collins, Jan. 1); Comstockiella sabalis damaged Sabal plametto palms in Polk County (Schmidt, Jan. 4); Aspidiotus spinosus infested leaves of Ruscus aculeatus in Manatee County, (Bickner, Jan. 3). These are new county records. (Fla. Coop. Sur.). (p. 120, 121).

A THRIPS (Baileyothrips arizonensis) - CALIFORNIA - Light on Euphorbia sp. in Glamis, Imperial County. First record for county. (Cal. Coop. Rpt.). (p. 121).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - GEORGIA - Found for first time in Heard County. (PPC South. Reg., Jan. Rpt.). (p. 123).

A SNAIL (Rumina decollata) - CALIFORNIA - Locally heavy in Costa Mesa, Orange County. This is new county record. Infestations also known in Riverside and Los Angeles Counties. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

Cereal and Forage Insects - CORN PLANTHOPPER (Peregrinus maidis) light on young corn in backyard gardens and commercial farms in Kula, Waikapu, Wailuku, Waihee and Waiehu, Maui. (Miyahira).

Truck Crop Insects - A STINK BUG (Thyanta accera) light on weeds in Hickam Air Force Base, Oahu, and on weeds and backyard crops in Ewa, Oahu. (Au). A LONG-HORN GRASSHOPPER (Conocephalus saltator) abundant in home gardens in Makaweli, Kauai. (Au). CHINESE ROSE BEETLE (Adoretus sinicus) caused light foliar damage to beans in several localities on Maui. (Miyahira). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) very light on bean and tomato plantings from Waikapu to Waihee, Maui; moderate to heavy on beans and eggplants in Waianae, Oahu; heavy on beans in Waipahu, Oahu. (Miyahira, Au). SPOTTED GARDEN SLUG (Limax maximus) heavy at 3,500 feet elevation on Maui. Controls applied. (Miyahira).

Forest, Ornamental and Shade Tree Insects - AN ARMORED SCALE (Lepidosaphes tuberculata) light to moderate on Cymbidium spp. (orchids) in Glenwood, Hawaii Island; also reported from Volcano area on Cymbidium spp. (Yoshioka, Shiroma). BLACK THREAD SCALE (Ischnaspis longirostris) collected from leaves of Prosopis pallida (mesquite) in Puako, Hawaii Island. This is new host and island record. Det. by J. W. Beardsley. (Davis). FULLER ROSE BEETLE (Pantomorus godmani) caused moderate foliar damage to Eucalyptus spp. near Puu Opae and Makaha Ridge (elevation 1,200-1,800 feet) on island of Kauai. (Au). CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) well under control in most areas. Adults per infested Ficus retusa leaf averaged .02-5 on Maui, .05-9 on Hawaii Island, and .05-12 on Oahu. (Davis).

Beneficial Insects - A HISPID BEETLE (Uroplata girardi) recovered in Kipahoehoe Forest Reserve, Hawaii Island; first released in April 1965 to aid in control of lantana. Larval mines on lantana foliage numerous in Kau, Hawaii Island; adults released in this locality for first time October 22, 1965. This beetle introduced from Brazil in 1961. (Harley).

New State of Hawaii Insect Records - A CADDISFLY (Cheumatopsyche analis) - Seven adults recovered from mosquito light traps in Oahu. Det. by D. G. Denning. (Beardsley).

AN ASTEIID FLY (Loewimyia n. sp.) - Two specimens collected by J. W. Beardsley, at Barber's Point, Oahu, December 29, 1965. Det. by D. E. Hardy, as undescribed species. Confirmed by C. F. Sabrosky. (Hardy).

A PRODOXID MOTH (Tetegicula sp.) - Six larvae found boring in seed pods of Yucca sp. from Hawaii destined to California on May 31, 1965, by T. Abear and J. Graffam. Det. by D. M. Wiesman. (Shiroma).

Preparation of Notes for Cooperative Economic Insect Report

Requests have been received relative to the type of information desired for the Cooperative Economic Insect Report and suggestions made for revision in the format.

The report will be reorganized on a principal crop basis. This will simplify present format and make the material more accessible and useful. It is hoped this approach will also stimulate greater participation by pointing out lack of reporting on individual crop problems. Efforts will be made to evaluate and present the information in ways to make it more useful in insect control.

Forecasting statements will be developed wherever field reports support such action. Reporters are encouraged to include this vitally important information in their notes. Emphasis of the Cooperative Economic Insect Report will be on the important insect problems of a regional nature, notes on routine insect occurrence will be kept to a minimum. Routine notes submitted on common insects will be added to the National insect files as warranted, however.

The following guidelines are suggested for preparation of notes. It is realized that all of the information outlined will not be available in each situation, but give the following information when possible.

1. Common (if available) and scientific name of species involved. Stages of insect involved. (If a taxonomic problem exists, it should be noted).

2. Location (definite, recognized area within state, such as region, county or town), date, name of observer or reporter. If note is for period other than current reporting period, give date of observation.

3. Host involved, scope and extent of infestation in number of counties, acres, trees, animals, etc. Also stage of host.

4. Quantitative evaluation of infestation according to recognized survey methods. Where such methods are not available, give numerical data such as number per linear foot, per plant, per sweep or per animal. These data should be based on a representative sampling. An adjectival rating should be accompanied by a numerical rating.

5. Estimation of extent of injury or damage.

6. Comparisons with previous infestations, outlook or predictions for future infestations, unusual influences.

7. Status of natural or applied control.

8. When reporting new State, United States, or North America records, include the above information insofar as applicable, as well as name of taxonomist making determination.

Examples of notes including these data are as follows:

> EUROPEAN RED MITE (*Panonychus ulmi*) - Egg populations have reached point where protective sprays are warranted in 10 percent of apple orchards in Knox County. Counts on June 30 showed 0 to 4.8 live mites per leaf and 0 to 37.6 eggs per leaf. Further increase and spread expected with continued favorable weather. (Jackson, July 2).

> EUROPEAN CORN BORER (*Ostrinia nubilalis*) - Oviposition and hatch practically complete in central counties. Fifty egg masses per 100 stalks in northwest area. In southern counties, all corn 35 inches or taller, 70 to 100 percent infested with 2 to 22 larvae per stalk. Larvae from first to third instar. (Smith).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1965

(continued from page 115)

CEREAL AND FORAGE INSECTS (continued)

ALFALFA, CLOVER, SWEETCLOVER AND VETCH INSECTS

Highlights:

ALFALFA WEEVIL was again the most important pest of alfalfa in the Nation as it was in 1964. Although it was not reported as new in any State, its range was extended into 109 new counties in 11 States already known to be infested. Damage by this pest ranged from light to heavy in many areas, especially to first and second cuttings of alfalfa, and some dramatic increases in infestations were reported. Control of alfalfa was hindered by the removal of certain chlorinated hydrocarbons with long residuals from spray programs. Economic damage to alfalfa was reported for the first time in Kansas and Indiana. CORN EARWORM was the primary pest of legumes in Arkansas and some damage was reported in Oklahoma and New Mexico, and VARIEGATED CUTWORM, FALL ARMYWORM and GREEN CLOVERWORM caused some damage to alfalfa and clovers. SPOTTED ALFALFA APHID populations were generally lower than in 1964, with little serious damage reported. PEA APHID caused some severe losses to alfalfa in Oregon, populations required treatments in some areas of the Nation and were lower than last year in other areas. THREE-CORNERED ALFALFA HOPPER caused moderate girdling of alfalfa in Arizona and infested this crop over many areas of Texas. POTATO LEAFHOPPER was exceptionally heavy in alfalfa in Vermont, above normal with conspicuous injury in Maryland, and yellowing was evident on this crop in many areas.

ALFALFA WEEVIL (Hypera postica) extended its range in WASHINGTON during 1965 when it was reported from Walla Walla County for the first time. In OREGON, damage was severe to first cuttings of hay in Klamath, Lake, Baker, Crook and Wallowa Counties, and populations were higher in all areas of the State than in 1964. Due to the late spring and consequently late cutting of first crop, damage was much heavier this year in these counties than in 1964. Alfalfa weevil was more of a problem than previous years in CALIFORNIA and was present on alfalfa from February through September. This pest was found for the first time in Butte and Glenn Counties. Alfalfa weevil hatch was uneven in NEVADA, as it was in 1964, resulting in variable and extended larval infestations. Peak larval populations in excess of 200 per sweep and damage occurred in early June in central counties and late June in northern counties. Larval damage was so severe in one Lyon County field that treatment was necessary in mid-April. Larvae, pupae and adults were present in the Hiko area of Lincoln County in October when light damage to alfalfa was apparent. Increased damage resulted in many fields when adverse weather delayed treatments. Damage estimates in loss of tonnage and quality varied 10-25 percent for first and/or second-crop hay. Alfalfa weevil caused extensive and severe damage to first and second-crop alfalfa in UTAH. Large acreages were treated before harvest or as stubble immediately after first-crop harvest. Damage to the second crop was more general this year than usual and growth in untreated fields was often retarded as much as 4-8 weeks. Crop loss in Utah in 1965 often approached or equaled an average of one cutting of alfalfa.

Alfalfa weevil appeared to be more widespread and infestations heavier in alfalfa in Bernalillo and Sandoval Counties, NEW MEXICO, than in past years. Infestations ranged light to heavy in Rio Arriba, Santa Fe and San Juan Counties. This weevil was the major cause of losses to alfalfa in COLORADO which ranged 4-20 percent in various parts of the State. Weather conditions during summer months were conducive to several generations. In northeast Colorado, alfalfa yields were reduced by 4-15 percent as result of infestations of this weevil and several other alfalfa pests, and H. postica was present on alfalfa in southeastern sections at various economic levels. Losses to alfalfa averaged 3-4 percent in western Colorado, being as high as 8-10 percent in some sections. Most of this loss was attributed to alfalfa weevil. This curculionid was again the most damaging crop pest in WYOMING. Damage to alfalfa was comparable to that noted during 1964 in that regrowth of second crop was most severely damaged in most areas of the State. Adults were first noted in northern Wyoming on April 20 and larvae first found in late May. Larvae increased steadily until late June when an average of 2,850 per 100 sweeps was found in the Big Horn Basin area. Adults first appeared in southern Wyoming on May 28 and larvae were first found in early June. Larval damage was not so severe in the southern area as counts ranged 600-1,450 per 100 sweeps during the most damaging period.

Alfalfa weevil adults averaged 3 per 10 sweeps in alfalfa near Golva, NORTH DAKOTA, which was the first record for Golden Valley County. This weevil increased dramatically in the Black Hills area of SOUTH DAKOTA in 1965. Adults ranged 20-40 per 100 sweeps in Shannon and Fall River Counties the first of May and increased to 75-135 per 100 sweeps 5 weeks later in Lawrence County. At this same time in 1964 adults averaged fewer than 5 per 100 sweeps. Second and third instars ranged up to 155 per 100 sweeps in alfalfa 8-18 inches high by the first of June. Haying was underway in late May and high larval counts in June caused concern for second crop. Severe damage had occurred in unmowed first-crop alfalfa in July where counts had risen to 2,500 second to fifth instars per 100 sweeps. Subsequent development and adult movement from alfalfa markedly reduced counts to 5 adults per 100 sweeps by mid-August. Low numbers of larvae were still present even in mid-September, when counts of 3 per 100 sweeps were found in alfalfa in Pennington, Meade and Lawrence Counties. Control was hindered by the removal of chlorinated hydrocarbons from registration for use against alfalfa weevil. Research on use of short-term insecticides was then increased. Bathyplectes curculionis (an ichneumon wasp) contributed to larval control in the Black Hills area. No newly infested areas were found in South Dakota during 1965. Alfalfa weevil caused some light damage to alfalfa in Keith County, NEBRASKA, and was found for the first time in Hitchcock, Furnas and Dawson Counties. H. postica caused economic damage for the first time in KANSAS during 1965 early in the summer in Finney County.

Alfalfa weevil was found for the first time in 7 counties in ARKANSAS, placing it past the middle of the State in its westward movement. Larvae were active as early as February 15 following 2 warm weeks in the northeast. Eggs and all larval stages were present in the area in late March. No adults of H. postica were found in fall surveys. Alfalfa weevil is widespread in ALABAMA. Damage to alfalfa from 1960 to 1963 resulted in considerable reduction in planted acreage; damage during 1964 and 1965 was heavy to this crop except where good control practices were followed. Infestations in GEORGIA during the first half of 1965 were much more severe than during the 1964 season. Damage to alfalfa in the Piedmont of SOUTH CAROLINA was not so severe as in 1964. Generally, growers applied recommended spring controls in 1965, whereas many did not do so the previous year because of the transition from fall to spring treatment. Egg laying began early in November in South Carolina, a little earlier than usual. There are prospects for high populations in the State during the 1966 season.

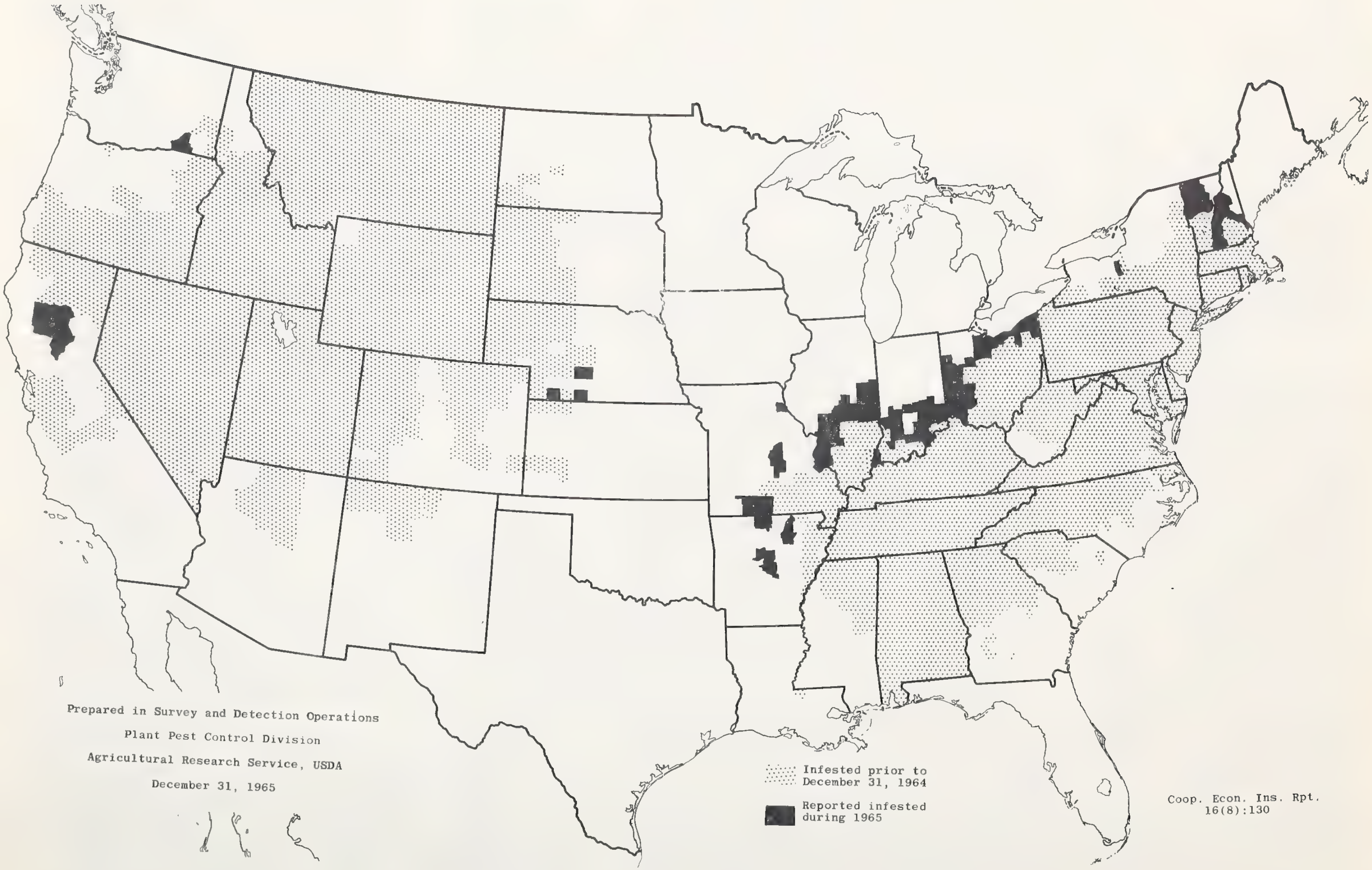
First alfalfa weevil larvae of the season in MISSOURI were observed in Pemiscot County March 18. Economic damage to alfalfa occurred only in the delta area and only in a few fields where counts ranged up to 100 per 10 sweeps. Chemical controls were used in the State for the first time in 1965, and this weevil was found for the first time in Ste. Genevieve, Osage, Maries, Phelps, Christian, Douglas, Taney and Ozark Counties. Alfalfa weevil was first noted during the 1965 season in ILLINOIS on April 5 in the southern section, when mating was common, eggs were being laid and a few first instars were present. Adults varied 0-6 and larvae 0-400 per 100 sweeps by April 12-15, with light feeding injury observed on terminal growth of up to 62 percent of stems in Hardin County. Counts per 100 sweeps in alfalfa April 26-29 varied 0-2 adults and 0-800 larvae in the southwest and 0-30 adults and 1-4,500 larvae in southeast section. Up to 85 percent of stems showed terminal feeding in Hardin County. Many larvae pupated and a few adults had emerged during this period. Adults varied 0-16 and larvae 0-5,400 per 100 sweeps of alfalfa in the southern third of Illinois May 3-6, but by May 17-20 populations declined rapidly as alfalfa was being cut for hay, thus exposing larvae and pupae to the hot sun. Larvae ranged 0-9 per 100 sweeps in second growth alfalfa in the southern area June 1-10 but no damage was noted. Some adults were killed by fungus and the last larva of the season was found July 25. Although present throughout the season, adults were rather scarce in August and September. Alfalfa weevil was found for the first time in 18 counties of Illinois during 1965.

Alfalfa weevil reached economic proportions for the first time since being found in INDIANA in 1964, with heaviest numbers occurring in Harrison County. Of the 26 counties found infested during 1965, infestations were of economic importance only in Floyd County. Adults ranged 1-10 per 100 sweeps during the spring in newly infested counties, and trace numbers were present from mid-June to the end of the season in Indiana. Several surveys were conducted in MICHIGAN but no alfalfa weevil infestations were found. This weevil was found for the first time in 29 OHIO counties during the year, with only the 11 counties in the northwest corner of the State not known to have this pest present. Young larvae were present in alfalfa by mid-March and damage was reported from many southern counties by mid-April. Reports of heavy infestations were numerous until first cutting or through June. Mass migrations into various other crops occurred in many areas where populations were high. Damage was less severe to second and third cuttings; however, many fields in the southeast section were damaged beyond recovery or completely destroyed. Adults were less numerous through the summer but became more common through the fall, with a few remaining active on warm days as late as December 15. From late March to mid-June, when larvae were feeding, economic infestations were reported in alfalfa in about 35 southern and eastern counties.

Alfalfa weevil was again the most important pest of alfalfa in VIRGINIA, causing considerable concern on first and second cuttings. Infestations were noted earlier than usual in the mountain counties. First larvae of the season in MARYLAND appeared in early April and thereafter caused moderate to heavy injury to unprotected first-growth alfalfa in most sections. Adults and larvae retarded second growth of alfalfa in many fields in central Maryland during late June. Larvae were present and feeding on alfalfa in most areas of DELAWARE by April with heavy injury in some fields as early as April 17. By May, damage was unusually heavy in many fields. Injury to first cuttings of alfalfa was very high in untreated fields and in some fields one application was not sufficient to give control. Alfalfa weevil was extremely damaging to first and second cuttings of alfalfa throughout NEW JERSEY, with as much as 20-40 percent of the total yearly production lost in many areas. Alfalfa weevil continued to be the most serious crop pest in PENNSYLVANIA. In addition to injuring established alfalfa, damage was severe to new spring seedings. After first cutting of alfalfa, migrating adults infested milk houses and homes.

Alfalfa weevil was heavy in RHODE ISLAND in late May and early June where alfalfa was grown this year. First overwintered adults in MASSACHUSETTS were observed in duff April 21, but very few viable overwintering eggs were found. First-generation adults emerged by June 5. First damage was observed May 14 and increased until populations declined in mid-June. Parasites greatly reduced larval numbers late in the season. Very few adults were present in fields in the fall and oviposition was not extensive. Alfalfa weevil represented 99 percent of all beetles and 85 percent of all insects collected on alfalfa in Massachusetts during the 1965 season. Alfalfa weevil continued to advance northward in VERMONT into Franklin County on the west side of the State. Only the 3 most northeastern counties are not known to be infested. Damage to alfalfa was not as great as expected, although as much as 50 percent injury occurred in some fields in the Benson area. The distribution of alfalfa weevil in NEW HAMPSHIRE was extended to all except Carroll and Coos Counties. This insect was readily found in most alfalfa but commercial damage has not yet become significant in New Hampshire.

Distribution of Alfalfa Weevil
(*Hypera postica*)


▨ Infested prior to December 31, 1964
■ Reported infested during 1965

Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
December 31, 1965

Coop. Econ. Ins. Rpt.
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CLOVER LEAF WEEVIL (Hypera punctata) was of some significance on forage legumes in OHIO, and populations were low in ILLINOIS, with very little damage. An estimated 4,123 acres were treated in the latter State. Populations were very light in central NEBRASKA and some damage to legumes was observed in MISSOURI. Clover leaf weevil caused some damage in OKLAHOMA and injured crimson and white clovers in ALABAMA. Also in Alabama, LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) damaged crimson and white clovers, being the predominant pest of white clover, with CLOVER HEAD WEEVIL (H. meles) the major pest of crimson clover.

Heavy populations of a WEEVIL (Hypera brunneipennis) caused moderate to heavy damage on alfalfa in Yuma County and areas of Maricopa and Pinal Counties, ARIZONA. Peak populations occurred in late February through mid-April, and although parasites were helpful, chemical controls were necessary in many fields. This weevil damaged alfalfa in Imperial, San Bernardino, Riverside, San Diego and Ventura Counties, CALIFORNIA, and Tulare County was included as the northern limit of this pest in the State during 1965.

CLOVER ROOT CURCULIO (Sitona hispidula) adults were unusually abundant in alfalfa during the spring in New Castle County, DELAWARE. SWEETCLOVER WEEVIL (Sitona cylindricollis) and Sitona scissifrons were light and caused no noticeable economic damage in NEBRASKA.

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) was reported for the first time in NEVADA during the 1965 season, where it was collected in Nye, Lincoln and Clark Counties.

MARGINED BLISTER BEETLE (Epicauta pestifera) and BLACK BLISTER BEETLE (E. pennsylvanica) were of some significance on forage crops in OHIO. Black Blister beetle populations built up slightly in the summer but no damage was reported. A STRIPED BLISTER BEETLE(Epicauta sp.)and ASH-GRAY BLISTER BEETLE (E. fabricii) damaged some legumes in MISSOURI. Blister beetles were of minor concern in ARKANSAS, with the usual spot infestations reported. During early July, Epicauta sp. became numerous in alfalfa in a few locations in northwest Arkansas. Blister beetles appeared in alfalfa in OKLAHOMA in late May but were generally light through August. Moderate to heavy numbers were present in some fields in northeastern Oklahoma during September.

CLOVER STEM BORER (Languria mozardi) was of some significance on forage in OHIO. Adults of a WIREWORM (Ctenicera signaticollis) averaged 15 per 100 sweeps in a clover-alfalfa mixture and 45 per 100 sweeps in a field of alfalfa in Monroe County, ILLINOIS, on May 4. This was a new county record, C. signaticollis having been known previously only from Pope and Jackson Counties. VETCH BRUCHID (Bruchus brachialis) occurred in most all vetch-growing areas of TEXAS, with damage varying light to heavy.

Various LEPIDOPTERA were of some concern on leguminous crops across the Nation. CORN EARWORM (Heliothis zea), as usual, infested a wide range of crops in ARKANSAS and was the primary insect pest in the State. First moths appeared in the southeast on March 29, and first eggs were reported on crimson clover in the southern area April 6. Deposition was high until late April, then declined. Cumulative egg numbers reached 360,000 per acre on crimson clover in southern Arkansas. First pupation occurred May 15 and adults emerged June 5. Moths from first-generation larvae averaged 2,415 per acre. Corn earworm larvae were active in early April in OKLAHOMA and light to moderate numbers damaged alfalfa during May and June. Numbers were moderate on corn and alfalfa in much of the State by late July. Larvae of this noctuid were common in alfalfa in NEW MEXICO where they caused minor damage.

GREEN CLOVERWORM (Plathypena scabra) was common on alfalfa and clover in DELAWARE during mid-June. Larvae were first observed on alfalfa in southern ILLINOIS on April 29, but populations were low throughout the season and no damage was observed. Green cloverworm populations were light on alfalfa from late April to late August in OKLAHOMA, with heavy numbers present in a few areas in mid-September. This noctuid damaged alfalfa in Brazos and Burleson Counties,TEXAS, and crimson and white clovers in ALABAMA.

VARIEGATED CUTWORM (Peridroma saucia) was fairly widespread on clover and alfalfa in the southern half of ILLINOIS, but populations were generally low. An estimated 2,353 acres were treated. This pest damaged legumes in MISSOURI and moderate numbers damaged some alfalfa in southeast and central NEBRASKA in June and July. Variegated cutworm damaged alfalfa in southeast KANSAS early in the summer, but did not develop beyond this and was not extensive the rest of the year. There was some loss to alfalfa in COLORADO from this pest. In TEXAS, damage to vetch was considerably lighter than in 1964; however, heavy damage did occur in some local areas of the north central sections of the State. Variegated cutworm caused considerable damage to alfalfa plantings in CALIFORNIA.

FALL ARMYWORM (Spodoptera frugiperda) was light on alfalfa throughout VIRGINIA. The pest was more numerous than usual early in the summer in KANSAS, but populations did not continue and there was little damage to alfalfa in the fall. A spot infestation of YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) was observed on alfalfa in northwest ARKANSAS on July 17, when larvae averaged 100 per 100 sweeps. WESTERN YELLOW-STRIPED ARMYWORM (P. praefica) caused moderate damage to alfalfa in Josephine County, OREGON. FORAGE LOOPER (Caenurgina erechtea) was present in very low numbers on forage crops in KANSAS and caused little damage.

ARMY CUTWORM (Chorizagrotis auxiliaris) caused some damage to forage crops in OKLAHOMA, and populations ranged light to moderate during the spring in KANSAS with highest numbers present in the western half of the State. This pest, in conjunction with an early drought, resulted in noticeable kill of alfalfa in some western area fields. Light trap collections during the fall indicated a very minor moth flight and few problems are expected in Kansas in the spring of 1966. Army cutworm was locally moderate during April and May in NEBRASKA, with some damage occurring to alfalfa in central and southwestern areas. Populations were generally lower in the State than usual. Army cutworm caused some losses to alfalfa in COLORADO.

ALFALFA LOOPER (Autographa californica) larvae were present in unusually large numbers during mid-June in alfalfa in the Big Horn Basin area of WYOMING. Counts ranged 75-90 per 100 sweeps with slight to moderate damage noted in more heavily infested fields. Alfalfa looper heavily infested late cuttings of alfalfa in Klamath County, OREGON.

ALFALFA WEBWORM (Loxostege commixtalis) was heavier than during 1964 in Howard County, NEBRASKA, where moderate populations caused general, light damage to alfalfa. GARDEN WEBWORM (L. similalis) was very abundant and damaging to alfalfa during the early summer in KANSAS, but populations declined and little additional damage was reported. Garden webworm caused some damage to legumes in MISSOURI, and was of little importance in ARKANSAS, where a few noneconomic infestations occurred on alfalfa. Infestations of Loxostege spp. were heavy on alfalfa in central and south central OKLAHOMA during May, then decreased and remained light until mid-June. Moderate to heavy numbers damaged alfalfa in all but northwest and Prairie Hills areas of Oklahoma from late June to early October.

ALFALFA CATERPILLAR (Colias eurytheme) was more prevalent on alfalfa in CALIFORNIA than usual, but was of only minor importance on this crop in NEW MEXICO. Light populations caused very little damage to legumes in NEBRASKA, and light numbers were present in most areas of OKLAHOMA from early May to early November. Alfalfa caterpillar caused some damage to alfalfa in ALABAMA.

SPOTTED ALFALFA APHID (Therioaphis maculata) began building up in alfalfa in Eddy and Lea Counties, NEW MEXICO, in January, causing some damage, especially to seedling alfalfa. During the cool spring months effective control was very difficult to obtain in Chaves and Eddy Counties. This aphid was only a minor problem in New Mexico during the summer months. Generally light infestations of spotted alfalfa aphid appeared in alfalfa during the spring in Yuma, Maricopa, Pinal and Graham Counties, ARIZONA, and occasional heavy increases in the Yuma Mesa and

Chandler areas required controls. Heavy, late fall populations occurred in Graham, Cochise, Maricopa and Yuma Counties. Spotted alfalfa aphid was not present in northeastern COLORADO until late fall. In the southeastern part of the State, this pest was present at various economic levels. This aphid was responsible for much of the losses to alfalfa in this part of Colorado, ranging from negligible to 15 percent. Spotted alfalfa aphid, found for the first time in WYOMING in October 1964, was not observed during 1965 until early August in the State. It was reported for the first time this year in Laramie and Platte Counties, with counts averaging 18-40 per 100 sweeps in infested areas. Sexual forms were found for the second year in these areas. Spotted alfalfa aphid was not observed in MONTANA this season.

Spotted alfalfa aphid populations were again below normal in southern and northern counties of NEVADA, but treatments were needed or applied in some central counties in the fall. Populations were generally light over CALIFORNIA, with a few locally medium to heavy infestations observed. In OREGON, only small numbers were noted on alfalfa in Umatilla County in mid-August.

Spotted alfalfa aphid populations in TEXAS were similar to those of 1963 and 1964, with little significant damage. Light populations were present in overwintering alfalfa in most areas of OKLAHOMA during January but cold weather kept numbers low until late April. Numbers increased slowly from May to July. Counts were heavy in some areas of the State during July and August but never more than moderate in other areas. During September, October and November, numbers decreased, but increased again in some areas in December. The highest counts of the season in Oklahoma occurred in the northwest during mid-December. Spotted alfalfa aphid was in general, lighter in ARKANSAS than in 1964, except for relatively high numbers in a dry area in the eastern part of the State in midsummer. Numbers were generally lower in alfalfa over MISSOURI than in 1964 also, with damage to this crop being generally light over the State. Counts averaged 100-500 per 10 sweeps during the season. Spotted alfalfa aphid reached only minor economic levels during the summer in KANSAS. These populations continued into the fall and controls were applied in a few areas. Numbers were high during the spring in southern and central NEBRASKA, but dropped later in the year. Counts up to 15 per sweep developed in the southwest area in late summer but decreased in October. In November, populations of 25 per sweep developed in the eastern area with 50 percent of individuals being oviparous females. Little economic damage to alfalfa occurred in Nebraska. Spotted alfalfa aphid was found for the first time in 9 counties in SOUTH DAKOTA, indicating it now ranges completely across the southern portion of the State. Usual populations averaged 2-4 per sweep, although the highest count of up to 50 per 100 sweeps was recorded in Fall River County. In mid-July, numbers were sufficient on alfalfa underplanted in wheat in Kingsbury County to cause honeydew to be easily visible. The last observation of this aphid this season was made the third week of October, with up to 25 aphids, including sexuals, per 100 sweeps present. No controls were necessary in South Dakota in 1965.

Spotted alfalfa aphid eggs hatched April 22 near Brodhead, WISCONSIN, about a week later than 1964; winged forms were first noted May 7. Populations remained low, except for a brief period of rapid increase in July. Numbers decreased greatly the first week of September and continued into October. Late in October and early in November, a slight increase was noted. Egg laying forms were low in numbers late in the season and some eggs were laid. As no males were noted at this time, there is some question regarding the viability of eggs laid in Wisconsin this season. This aphid was first noted in southern ILLINOIS April 12. It was widespread but populations were low and no damage was observed except in the southern section where some discoloration of alfalfa and dropping of leaves were apparent. Highest populations in Illinois ranged 0-60 per sweep in alfalfa in the southern section July 26-29. Spotted alfalfa aphid was reported for the first time in MICHIGAN during 1965. Specimens collected September 7 in Shiawassee County were determined by L. M. Russell. Subsequent surveys revealed very low populations in a large number of Lower Peninsula counties south of Gratiot and Tuscola Counties. This aphid is not expected to cause major economic losses to alfalfa in Michigan. Spotted alfalfa aphid was present in noneconomic numbers in OHIO, with a few winged forms being collected in 2 counties in the southwestern corner of the State.

PEA APHID (Acyrthosiphon pisum) was active on seed alfalfa by mid-March in Walla Walla County, WASHINGTON. By mid-May, alates comprised 10 percent of the population. Counts increased 10-fold in late May, and averaged up to 1,000 per sweep in early August. Losses to second and third cuttings of alfalfa hay were severe in eastern Washington. In OREGON, however, populations were variable with no serious damage reported from any area. Pea aphid was present on alfalfa in CALIFORNIA, but was not the problem of former years.

Pea aphid infestations in NEVADA were above the 1963 and 1964 levels, with treatments necessary or applied in southern counties in April and in central and northern counties from April to early September. Parasites and predators increased to high levels in many areas, exerting some control. Some seedling stands of alfalfa were killed in Churchill County in April. In Lyon County, heavy populations caused 5-10 percent loss of second crop hay. Loss estimates varied from negligible to 10 percent in different counties of Nevada. Pea aphid infestations were predominantly light to medium on alfalfa in ARIZONA, with peak populations during early May causing little damage to early spring alfalfa. A late buildup during October and November caused light damage to alfalfa in Cochise, Graham and Maricopa Counties. Heavy populations caused extensive damage to alfalfa in most southeastern counties of NEW MEXICO and in Valencia County, where it seriously retarded growth of first and second cuttings and killed out a number of seedling stands. Abnormally heavy infestations were found in alfalfa in Lea, Chaves, Eddy and Roosevelt Counties. Populations and damage were more severe during 1965 than during the past 5 years in New Mexico.

In COLORADO, pea aphid ranged light to medium with few controls needed on alfalfa in Mesa, Montrose, Delta and Garfield Counties. This aphid was partly responsible for the 4-15 percent reduction in alfalfa yield in northeastern Colorado, and was present at various economic levels in the southeastern area. Populations in WYOMING were slightly lower than those of 1964. First specimens were taken in late April in the southern area and in early May in northern areas. Numbers increased until mid-July, when counts per 100 sweeps averaged 3,250 in the north and 2,300 in the south. Some controls were undertaken in Laramie County where high populations damaged regrowth of second-cutting alfalfa. Pea aphid was reported on alfalfa in many areas of MONTANA and was observed on sweetclover, vetch and some garden plants.

Pea aphid was generally noneconomic in NORTH DAKOTA, but counts of 200-300 per 10 sweeps were noted in alfalfa at a few locations. Populations were extremely high on alfalfa throughout the season in MINNESOTA, with growing conditions ideal and no damage apparent. Predators and parasites were slow to multiply and were generally unsuccessful in reducing populations in the State. Pea aphid was the most common aphid species in alfalfa in SOUTH DAKOTA throughout the growing season. First collections were made May 7 in the western area when up to 1,000 per 100 sweeps were taken. Final samplings on October 22 in Hutchinson County yielded 250 per 100 sweeps. Highest counts on alfalfa were recorded in a Moody County field in late May when more than 10,000 per 100 sweeps were taken. By the first of July counts had dropped to 50 per 100 sweeps in central and south central South Dakota. In Kingsbury County in mid-July, populations had increased to over 6,000 per 100 sweeps. Recommended controls were applied when economic infestations occurred.

Pea aphid populations ranged low to moderate throughout 1965 in NEBRASKA, with little economic damage noted. Populations were about the same as the previous year. The pest was quite plentiful in some areas of KANSAS, but did not warrant controls. Counts ranged up to 3,000 or more per 10 sweeps in alfalfa during May and June, with statewide infestations being approximately the same as in 1964. Damage to alfalfa did not reach economic proportions in MISSOURI in 1965.

Pea aphid was present on overwintering alfalfa but counts remained low until March in OKLAHOMA. Rapid increases during early April resulted in counts of 3,000-6,000 per 10 sweeps being common on alfalfa in many areas by early May. Heavy rains and early cutting reduced numbers in mid-May; decreases continued until infestations disappeared in early July. Fall activity began in mid-September and light numbers were present the remainder of the year. Pea aphid was relatively low in ARKANSAS early in 1965, but increased to 100 per sweep by April. Counts varied from very low to high over the State in the fall, but parasites reduced numbers in November. Pea aphid caused the usual widespread damage to legumes, particularly vetch, in east, north central and central TEXAS.

Very high pea aphid populations in WISCONSIN alfalfa early in the season prompted some controls. Damage to alfalfa was noted in several areas very early; however, natural controls caused a population collapse in late May, thus preventing further buildup on alfalfa. Eggs hatched April 13 and production of nymphs began about May 7. Winged individuals appeared the second week of May. Cool temperatures favored population increases and aphids were sufficiently numerous in scattered fields to cause some damage to alfalfa plants. Populations in alfalfa collapsed the last week of May, probably due to parasitism by *Praon pequodorum* (a braconid wasp). Populations remained low until early October when numbers again began to increase. Pea aphid populations were rather low but very erratic throughout ILLINOIS. Parasites and disease were common, being heavy in some fields and absent in others. The heaviest population found in any field was 600 per sweep April 26-29. Controls were applied to an estimated 10,640 acres in Illinois.

Pea aphid was first observed on alfalfa in southwestern INDIANA by April 10. Counts ranged 9-35 per sweep in the southern quarter of the State by April 24 and increased to scattered economic densities of up to 80 per sweep by May 1. Pea aphid was light in southern two-thirds of the State during May, 5-20 per sweep by May 23. Dry conditions existed throughout Indiana until mid-July, and populations increased as substantial rains and cool temperatures prompted lush growth of alfalfa during August and September. Counts ranged 10-40 per sweep throughout Indiana from mid-August through mid-September. Pea aphid numbers in MICHIGAN varied greatly among fields, depending largely upon growth stage of alfalfa, time of year and numbers of natural enemies present. Succulent, fast growing-stands generally harbored largest colonies. During early May, braconid wasps probably kept pea aphid numbers relatively low; fewer than 30 aphids per 10 sweeps were taken in Monroe and Livingston Counties. During September, lady beetles and damsel bugs were important in keeping pea aphid counts on alfalfa down to an average of 166 per 10 sweeps in 24 fields sampled in 8 Lower Peninsula counties. Pea aphid began to increase in OHIO the latter half of April. Random high populations remained through September, declining in October. Maximum counts approached 150 per sweep. Residual populations were noted in Ohio in mid-November. Activity was statewide, with specific occurrences observed in some 20 counties. Individual populations varied greatly according to harvest of alfalfa, parasitism and predation.

Pea aphid infested alfalfa throughout VIRGINIA but caused little damage, and numbers on this crop in MARYLAND were again below normal with populations over 100 per sweep occurring only in isolated areas. This aphid was present in usual abundance wherever alfalfa was grown in RHODE ISLAND. Parasitized individuals were common. Pea aphid numbers were very low on alfalfa in MASSACHUSETTS in 1965, comprising only 3 percent of the total number of insects taken on this crop compared with 50 percent in 1964.

COWPEA APHID (*Aphis craccivora*) was general but light on burclover in Brazos County, TEXAS, and CLOVER APHID (*Nearctaphis bakeri*) was abundant in red clover seed fields in Grant County, WASHINGTON, by July.

MEADOW SPITTLEBUG (*Philaenus spumarius*) was slightly more abundant on alfalfa in MASSACHUSETTS than in 1964, but represented less than 1 percent of all insects on this crop. Stunting of plants occurred in some fields. This pest was common throughout RHODE ISLAND from late May to midsummer, and was a problem on alfalfa and red clover in western and central sections of MARYLAND. Early stage nymphs were first noted in alfalfa in southern OHIO on April 13 and adults were collected May 21. Fields inspected during this period in 13 counties, mostly in southern half of the State, showed up to 70 percent of plants infested with 3 spittle masses per plant. In MICHIGAN, adults were emerging June 8 in Monroe County. Numbers were variable among fields with 8-70 per 10 sweeps noted in Ingham and Macomb County alfalfa July 6. By late September, counts averaged 6 per 10 sweeps in 24 fields of alfalfa in 8 Lower Peninsula counties.

Meadow spittlebug nymphs were unusually heavy in central and eastern portions of the southern quarter of INDIANA during May; 1-2 per alfalfa stem were present in many fields during mid-May. Adults ranged 8-12 per sweep during week ending June 4. By June 11, adults had dispersed in southernmost areas. Populations were generally light in central and northern Indiana, with 2-4 nymphs per 10 stems during late May. Adults averaged 2 per 10 stems by June 18, but ranged 40-80 per sweep in one area in extreme northeastern Indiana. Meadow spittlebug was extremely low in ILLINOIS. Results of the annual survey showed a State average of only 0.31 adults per sweep. About 4 or 5 counties in the northwest corner of the State had infestations ranging light to medium, while the remainder of Illinois was rated as noneconomic. Meadow spittlebug nymphs appeared early in May in southern WISCONSIN, with populations again highest in southwestern counties. As many as 16 nymphs per plant were reported but 1-2 per plant were normal. Adults appeared in mid-June. Nymphs were reported in Washburn County as late as mid-July, illustrating the variation of development between the more advanced southern areas and the northern areas of Wisconsin.

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) was moderate to heavy on alfalfa in ARIZONA during August and September, with moderate girdling apparent in Maricopa, Pinal and Yuma Counties. This pest infested alfalfa over many areas of TEXAS, and was generally light in alfalfa throughout the season in OKLAHOMA with high counts noted in early October. Three-cornered alfalfa hopper continued as a minor problem on alfalfa in ARKANSAS.

POTATO LEAFHOPPER (*Empoasca fabae*) was exceptionally heavy on alfalfa in VERMONT, and was above normal in MARYLAND, where it caused conspicuous injury to alfalfa in all sections most of the summer. Potato leafhopper was generally distributed on alfalfa throughout OHIO by mid-July but populations were generally low and damage was light. A light sampling of adults was taken from 6 fields of alfalfa in Monroe, Lenawee and Washtenaw Counties, MICHIGAN, on May 18. Seasonal levels were low enough that no major problems developed on alfalfa. Potato leafhopper was economically unimportant in the southern two-thirds of INDIANA. In the northern third of the State, however, economic infestations occurred from July 16 through July 30, when adults and nymphs ranged 8-16 per sweep and yellowing of alfalfa was evident throughout the area on second-growth alfalfa. First specimens were found on alfalfa in southern ILLINOIS on April 26 and the main flight into the State occurred about May 15. Adults ranged as high as 8-12 per sweep in some fields during late May and June. Light to moderate yellowing was evident on 7 percent of second-cutting alfalfa in the northwest district and on 22 percent of second cutting in central district. Yellowing of alfalfa was also reported in west and west-southwest districts. An estimated 18,500 acres of alfalfa were treated for control of this pest in Illinois. Potato leafhopper adults were observed in alfalfa the second week of May in WISCONSIN. Nymphs were noted the first of June and numbers increased until late June when adults began to appear. This pest was numerous in a few fields of alfalfa throughout the summer; nymphs and adults remained until the first week of November.

First potato leafhopper adults of the season were swept from alfalfa in southwest and west central MISSOURI about May 6; counts ranged up to 25 per 10 sweeps through June, July and August, with heavy yellowing observed in several fields over the State. Damage to alfalfa was not so heavy as in 1964, possibly because of the excellent growing conditions during 1965. Populations in NEBRASKA ranged 2-30 per 10 sweeps in alfalfa, about the same as in 1964. Light damage to alfalfa occurred in some fields in central and southwest Nebraska.

RAPID PLANT BUG (*Adelphocoris rapidus*) nymphs were noted in alfalfa in WISCONSIN the second week of May, with ALFALFA PLANT BUG (*A. lineolatus*) and TARNISHED PLANT BUG (*Lygus lineolaris*) appearing a short time later. Nymphs and adults were common in nearly all fields in the State during the season, but the extent of crop damage was difficult to determine. Nymphs of alfalfa plant bug and rapid plant bug were first observed in southern ILLINOIS April 26 and adults May 17. Alfalfa plant bug nymphs reached peak abundance May 17-20 when counts ranged 60-2,200 per 100 sweeps and adults peaked July 26-29 with 10-300 per 100 sweeps in the southern half of the State. Rapid plant bug populations were generally low throughout the season. Both of these plant bugs damaged legumes in MISSOURI. In OHIO, rapid plant bug and alfalfa plant bug were of some significance. In MICHIGAN, nymphs and adults of FOUR-LINED PLANT BUG (*Poecilocapsus lineatus*) caused greater than usual injury to host plants in early July.

Alfalfa plant bug populations were unusually heavy on alfalfa throughout the growing season in southern INDIANA. Nymphs and adults ranged 8-18 per sweep the last 2 weeks of May. Populations reached 4-12 per sweep on July 9 and averaged 5-7 per sweep July 30. In northern areas of Indiana, populations were lighter with peak densities of 3-10 per sweep occurring the last 2 weeks of July. Alfalfa plant bug was below economic levels throughout the season in KANSAS and light populations during June and July caused little damage to alfalfa in eastern and central sections of NEBRASKA. Alfalfa plant bug nymphs and adults varied 30-600 per 100 sweeps in most alfalfa checked in eastern SOUTH DAKOTA in June.

Rapid plant bug, which has been scarce for several years in ARKANSAS, ranged 20-30 per 100 sweeps in alfalfa in that State in May. In ALABAMA, this pest caused some damage to crimson and white clovers during the year.

TARNISHED PLANT BUG (*Lygus lineolaris*) caused some damage to crimson clover and white clover in ALABAMA. The pest became active during mid-April in OKLAHOMA, but remained light through mid-June. Moderate to occasionally heavy counts occurred from late June to mid-August. Tarnished plant bug remained below economic levels throughout the season in KANSAS and NEBRASKA, but caused some damage to legumes in MISSOURI. Tarnished plant bug was low most of the season in ILLINOIS, with highest counts per 100 sweeps in any field of clover or alfalfa being 160 adults and 700 nymphs. This pest was first noted in OHIO this season on alfalfa in early April. Populations were relatively low and spotty, but continued through mid-November. Populations were somewhat below one per sweep in 18 counties over the State, although many fields had one or more per sweep. Nymphs in one area of Ohio approached 20 per sweep.

Alfalfa plant bug was again widespread and prevalent in alfalfa and clover in MARYLAND, especially those fields in or near bloom. Plant bugs were somewhat less abundant in MASSACHUSETTS alfalfa in 1965, comprising 4 percent of total insect numbers, compared with 5 percent in 1964. Tarnished plant bug was the most abundant species, comprising 61 percent of all plant bugs collected.

LYGUS BUGS (*Lygus* spp.) infested alfalfa in most areas of TEXAS, but degree of infestation varied considerably. Infestations were heavy on seed alfalfa in ARIZONA during May, June and July. Infestations of lygus bugs were normal on seed alfalfa in NEVADA where held below economic levels by insecticide treatments; however, severe damage did occur in Lincoln County. These pests were very widespread and damaging to all forage crops in CALIFORNIA. Winter adults of *Lygus hesperus* and *L. elisus* were active on alfalfa in WASHINGTON by mid-April, with first and second instars prevalent by April 30. An adult "fly-in" increased populations of these pests in seed fields in Washington up to 25-fold during late June.

Populations of CRICKETS in western third of MINNESOTA were higher than in 1964. Most infestations occurred along roadsides with some movement into alfalfa late in the season. No damage to crops was observed in Minnesota but some nuisance infestations were reported in homes. These pests caused heavy feeding injury to reseeded crimson clover in grass sods in ALABAMA during September, October and November. WESTERN FLOWER THRIPS (Frankliniella occidentalis) was heavy in alfalfa in Esmeralda County, NEVADA, during July, and EUROPEAN EARWIG (Forficula auricularia) caused some damage to forage crops in CALIFORNIA during the 1965 season.

ALFALFA SEED CHALCID (Bruchophagus roddi) damaged alfalfa seed in Imperial County, CALIFORNIA, and in WASHINGTON, populations and damage were higher than in 1964, with an average seed infestation of 15 percent. Infestation of red clover seed by CLOVER SEED CHALCID (B. platyptera) has been increasing in Washington during recent years. In one area of Franklin County, where hay cutting was not taken, seed lots were up to 50 percent infested.

MITES were present and damaging to forage crops in CALIFORNIA, but due to cool weather these pests caused continuing damage rather than abrupt damage as in previous years with hot weather. SPIDER MITES (Tetranychus spp.) were moderate to heavy in alfalfa in Yuma, Maricopa, Pinal and Graham Counties, ARIZONA, with controls necessary in many fields.

BROWN WHEAT MITE (Petrobia latens) was below economic levels on alfalfa in NEVADA, but scattered, spotty populations damaged alfalfa in Dona Ana, Sierra, Lea, Eddy, Roosevelt and Curry Counties, NEW MEXICO, during the spring. CLOVER MITE (Bryobia praetiosa) was below economic levels on alfalfa in New Mexico. This pest was active in ARKANSAS in early April, but was not of economic importance.

SOYBEAN AND PEANUT INSECTS

Highlights:

CORN EARWORM was not the important pest of soybeans as it was in 1964. In spite of high moth populations in Delaware, larval damage to soybeans was very low. Heavy, local pod injury occurred in Maryland and only locally heavy infestations were present on soybeans and peanuts in Virginia. Corn earworm was much lighter on soybeans in Arkansas than last year, as was YELLOW-STRIPED ARMYWORM. CABBAGE LOOPER and VELVETBEAN CATERPILLAR were serious on soybeans in Alabama. POTATO LEAFHOPPER populations were high on soybeans in Delaware. GREEN STINK BUG populations were high in Kansas and damaging in several areas of Missouri. THRIPS were of concern on peanuts in Georgia, Texas and Oklahoma, and damaged soybeans on the Eastern Shore of Maryland.

CORN EARWORM (Heliothis zea) moths averaged 15 per night in blacklight traps the second week of August in DELAWARE and by late August through most of September averaged 90 per night. In spite of this very high population, there was little larval injury to soybeans as most growers planted early and the crop was not attractive for oviposition during peak flight periods. Corn earworm larvae caused heavy pod injury to late soybeans locally in Wicomico County, MARYLAND, but infestations on soybeans and peanuts in VIRGINIA were generally light throughout the season, with only a few locally heavy infestations reported late in August and in September. Larvae were first detected on soybeans in NORTH CAROLINA in middle and late August in 8 northeastern coastal counties. Most were very small at this time and only late-planted fields were damaged in other areas of the Coastal Plain, but no general infestations were noted in North Carolina. In ALABAMA, Heliothis spp. larvae were major pests of soybeans. Infestations of corn earworm on soybeans in ARKANSAS were much lighter than in 1964, with 24.9 percent of fields requiring treatment this year compared with 59 percent in 1964. Larvae of this noctuid were active in early April in OKLAHOMA and moderate numbers occurred on peanuts in much of the State by late July.

GREEN CLOVERWORM (Plathypena scabra) larvae averaged 30 per 100 sweeps on soybeans in most areas of DELAWARE by mid-August. Low numbers of larvae were present on most soybeans in VIRGINIA. Infestations on soybeans in ARKANSAS ranged from low numbers to 50-60 per 30 feet of row. The pest was light on this crop in OKLAHOMA, and damaged soybeans in Ochiltree County, TEXAS. Green cloverworm was of minor importance on soybeans in ALABAMA.

FALL ARMYWORM (Spodoptera frugiperda) and BEET ARMYWORM (S. exigua) were also of minor significance on soybeans in ALABAMA this season. YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) was lighter on soybeans in ARKANSAS in 1965 than in 1964.

CABBAGE LOOPER (Trichoplusia ni) was light on soybeans in ARKANSAS, caused locally heavy damage to soybeans in the Brazos River Bottom area of TEXAS, and was a major pest of this crop in ALABAMA. A LOOPER (Pseudoplusia includens) was prevalent and damaging on soybeans in ALABAMA, and VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) became serious on this crop in southern areas of the State. GRANULATE CUTWORM (Feltia subterranea) caused light to heavy feeding injury on peanut foliage in GEORGIA during the first half of 1965 season.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) heavily damaged a field of soybeans in south central VIRGINIA during August. Numbers were light to moderate on peanuts in southern GEORGIA the first 6 months of 1965, but the pest caused heavy local damage to peanuts over a wide area of TEXAS this season. RED-NECKED PEANUTWORM (Stegasta bosqueella) damaged peanuts in OKLAHOMA from mid-July to mid-October, with counts ranging up to 80 per 100 terminals in a few areas. Populations were more widespread and caused more damage to peanut foliage in the Portales area of Roosevelt County, NEW MEXICO, than in 1964. If this pest continues to build up and begins appearing earlier each year, it could cause severe damage to peanut-growing industry in Roosevelt County.

BEAN LEAF BEETLE (Cerotoma trifurcata) caused some damage in OKLAHOMA, and populations were relatively low in ARKANSAS, where highest numbers on soybeans averaged about 50 per 30 feet of row. Bean leaf beetle was of some significance on soybeans in ALABAMA, and light to heavy populations were detected on soybeans in VIRGINIA. In OHIO, bean leaf beetle caused some leaf damage to soybeans in Fayette County during early August.

MEXICAN BEAN BEETLE (Epilachna varivestis) caused striking but spotty foliage injury to soybeans in several fields in Worcester County, MARYLAND, and caused light to moderate defoliation of this crop in VIRGINIA. Mexican bean beetle was of some importance on soybeans in ALABAMA.

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) was light on peanuts in VIRGINIA, causing only slight damage.

CLOVER HEAD WEEVIL (Hypera meles) infested soybeans during late June in Auglaize County, OHIO. CLOVER ROOT CURCULIO (Sitona hispidula) was of some significance on forage crops in Ohio, infesting soybeans in Mercer and Hardin Counties during late June and early July. A JAPANESE WEEVIL (Calomycterus setarius) was collected for the first time in MISSOURI during the 1965 season, being detected in Atchison County after defoliating a 5-acre area in a field of soybeans.

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) continued to be a minor problem on soybeans in ARKANSAS. Generally light populations were present on soybeans throughout the growing season in OKLAHOMA with counts being highest in early October. Three-cornered alfalfa hopper infested soybeans over many areas of TEXAS.

Population levels of POTATO LEAFHOPPER (Empoasca fabae) on soybeans were markedly high in DELAWARE this season compared with those present in 1964.

GREEN STINK BUG (Acrosternum hilare) was present in high numbers on soybeans this fall in KANSAS, particularly in Crawford County. Green stink bug caused light to moderate damage to soybeans in southeastern, southwestern and west central MISSOURI. Highest numbers were observed in August and early September, and damage to soybeans in the State was slightly heavier than in 1964. Green stink bug was light on soybeans in some areas of VIRGINIA.

THRIPS populations were moderate to heavy on peanuts in OKLAHOMA from early June to mid-July, and caused light to heavy widespread damage to peanuts in TEXAS. Thrips were heavy on peanuts throughout the peanut-growing area of GEORGIA during the first 6 months of the year. Several species of thrips caused widespread streaking and stunting of seedling and young soybeans on the Eastern Shore of MARYLAND.

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) was a problem in several fields of soybeans in Dorchester and Wicomico Counties, MARYLAND, during August. Unspecified SPIDER MITES were moderately severe on soybeans in Cumberland County, NEW JERSEY, and caused light to heavy, widespread damage to peanuts in TEXAS.

SUNFLOWER AND FLAX INSECTS

BANDED SUNFLOWER MOTH (Phalonia hospes) larvae averaged 2-3 per head in sunflowers during late August in NORTH DAKOTA. Counts in volunteer sunflower at Fargo, Cass County, reached 12 per head. Larvae of PAINTED LADY (Vanessa cardui) averaged 2-3 per sunflower plant in some east central areas of South Dakota, with severe defoliation evident in several fields. BLACK CUTWORM (Agrotis ipsilon) infested sunflowers in CALIFORNIA.

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was low in flax in NORTH DAKOTA, with only trace numbers encountered in most instances.

Weather continued from page 118.

central New York where moisture from the Great Lakes was sufficient to produce 4 to 8 inches of new snow with some localities receiving more than 12 inches. Drifting caused the closing of several major highways on Sunday. It was a dry, sunny, and cool week in the Southwest and southern Great Plains where no measurable precipitation was recorded. This was the first time in 4 weeks that no rain fell over such a widespread area in that part of the Country. The Pacific Northwest also recorded abnormally light precipitation.

SNOW COVER: The return of cold weather east of the Rockies found little or no snow as far north as the central Great Plains, the Corn Belt, and the southern Appalachians. Snow cover continued moderate to heavy over the northern Great Plains, the Great Lakes area, and the Northeast. (Summary supplied by U. S. Weather Bureau).

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